

CLAIMS

What is Claimed Is:

- 5 1. In a computing system having a data communications architecture employing a serializer and a deserializer, a method to handle failed link training comprising:
 initiating training of links between the serializer and deserializer of the data communications architecture;
 generating link management data for encoding by the serializer;
10 communicating the encoded link management data to the deserializer by the serializer; and
 processing the encoded link management data by the deserializer upon observing a failure of the link training to identify a corrective action.
- 15 2. The method as recited in claim 1 further comprising reprogramming the serializer and the deserializer to retrain the link around identified link failures.
3. The method as recited in claim 2 further comprising configuring the serializer and the deserializer to expect selected data packets.
- 20 4. The method as recited in claim 1 further comprising formatting the link management data to have neutral disparity.
5. The method as recited in claim 1 further comprising communicating the link
25 management data to a plurality of selected deserializers by a plurality of serializers.
6. The method as recited in claim 5 wherein the link management data is compared across the plurality of deserializers.
- 30 7. The method as recited in claim 1 further comprising communicating the link management data between the serializer and deserializer upon a link training event failure event.
8. A computer readable medium having computer readable instructions to
35 instruct a computer to perform a method comprising:

initiating training of links between the serializer and deserializer of the data communications architecture;

generating link management data for encoding by the serializer;

communicating the encoded link management data to the deserializer by the
5 serializer; and

processing the encoded link management data by the deserializer upon
observing a failure of a link to identify a corrective action.

9. A system to handle failed links during training in a data communications
10 architecture comprising:

a link training module cooperating with a serializer and a deserializer to
establish and train communications links;

link management data communicated between the serializer and the
deserializer as part of a link training protocol to identify which links may not be working
15 properly; and

an instruction set providing link training instructions to the serializer and to
the deserializer to handle links that fail training.

10. The system as recited in claim 9 wherein the link management data has a
20 neutral disparity.

11. The system as recited in claim 9 wherein the link training module comprises a
portion of the serializer and the deserializer.

25 12. The system as recited in claim 9 wherein the link training module formats link
management data to have neutral disparity.

13. The system as recited in claim 12 wherein the link management data is
received by a selected number of deserializers for processing.

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14. The system as recited in claim 13 wherein a comparison is performed by the
link training module to identify which of the selected number of deserializers properly
processed the link management data.

15. The system as recited in claim 14 wherein the link training module reprograms the serializers and deserializers after identifying which links are not working.

16. The system as recited in claim 15 wherein the link training module retrains the failed links.

17. In a data communications architecture communicating data among computer processors a method to identify a failed link during training comprising:
establishing communications between serializers and deserializers of the data communications architecture to form communications links;
monitoring the communications between the serializers and deserializers as part of a training protocol;
executing the training protocol on the serializers and the deserializers;
generating link management data for communication between the serializers and deserializers; and
upon the occurrence of a link failure, comparing how the link management data is being processed by the deserializers.

18. The method as recited in claim 17 further comprising formatting the link management data to ensure uniform processing by the deserializers.

19. The method as recited in claim 18 further comprising reprogramming the serializers and the deserializers according to a link training protocol upon the occurrence of a link failure.

20. The method as recited in claim 19 further comprising setting the serializers and the deserializers to expect data having a selected format.

21. The method as recited in claim 17 further comprising retraining the failed links.

22. A mechanism to handle failed links during training for a data communications architecture employing serializers and deserializers comprising:

first means for training the serializers and the deserializers according to a selected training protocol to establish communication links;

second means for generating link management data formatted to be encoded by the serializers;

5 third means for communicating the link management data between the serializers and the deserializers; and

fourth means for comparing the communicated link management data at the deserializers to identify failed links.

10 23. The mechanism as recited in claim 22 wherein the link management data has a neutral disparity.